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Lower bounds for average sample size and efficiency of sequential selection procedures

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Abstract

In this paper we establish lower bounds for average sample size in procedures for selecting a population with the largest value of scalar parameter, when the given probability of the correct solution is guaranteed. In construction of bounds we use universal bounds of Volodin and Malyutov [I. N. Volodin, Theory Probab. Appl., 24 (1979), pp. 120-129], [M. B. Malyutov, Izv. Vyssh. Uchebn. Zaved. Mat., 1983, no. 11, pp. 19-41 (in Russian)]. The obtained results are applied to the estimation of efficiency of the Bechhofer selection procedure [R. E. Bechhofer, Ann. Math. Statist., 25 (1954), pp. 16-39] and sequential modification of it [S. C. Kao and T. L. Lai, Comm. Statist. A-Theory Methods, 9 (1980), pp. 1657-1676], [R. E. Bechhofer, J. Kiefer, and M. Sobel, Sequential Identification and Ranking Procedures, with Special Reference to Koopman-Darmois Populations, University of Chicago Press, Chicago, 1968]. ©2013 Society for Industrial and Applied Mathematics.

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Keywords

Efficiency, Lower bounds for average sample size, Selection